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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,372	02/25/2004	Shiying Zheng	85588RLO	3400

7590 03/29/2007
Pamela R. Crocker
Patent Legal Staff
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343 State Street
Rochester, NY 14650-2201

EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/786,372

Applicant(s)

ZHENG ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,11,12,14,15,17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,13,16 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Amendment***

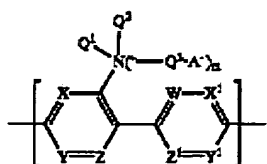
1. This Office action is responsive to the amendment filed January 12, 2007. Claims 1-19 are present in the application. The current elected species is the formula wherein X is Formula (IV) wherein Ar₉ is a phenyl group and each Ar groups is individually phenyl group. Since X was selected as phenyl rather than as a plurality of groups, claim 3 is withdrawn. Claims 1, 4-10, 13, 16, and 19 are under consideration. Claims 2, 3, 11, 12, 14, 15, 17 and 18 are withdrawn as non-elected.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4-10, 13, 16, and 19 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Pei (US 2002/0193551) in view of Nukada et al. (US 5,604,064). Pei discloses conjugated electroluminescent polymers wherein monomers may comprise the following formula:

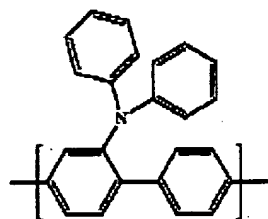


(viii)

(see par. 21).

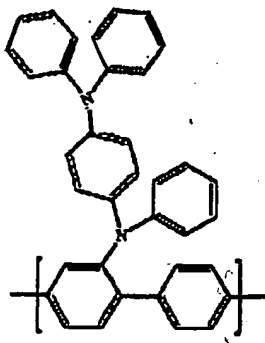
X, Y, and Z in the formula may be CH. A resulting polymer may include the following:

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(see par. 81).

Although Pei does not *exemplify* a compound wherein one of the aryl groups attached to the nitrogen is substituted with an amino group, Pei does teach that Q^1 and Q^2 may be substituted aryl groups (see par. 55). Pei defines the word “substituted” as at least one hydrogen atom bound to a carbon atom is replaced with a function group such as amino (see par. 47). Although Pei does not specifically teach diphenylamino as an amino group, Nukada teaches it is well known in the art that amino groups for electroluminescent device compounds may include specifically diphenylamino groups (see Nukada col. 4, lines 34-35). It would have been obvious to one of ordinary skill in the art to have formed a “Q” substituted aryl group having an amino group as taught by Pei wherein the amino is a diphenylamino group as taught by Nukada, because Nukada teaches that diphenylamino is a well known amino substitution group. The resulting repeating unit is the species under consideration:



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With regard to claim 5 and the requirement of additional light emitting material, Pei teaches a blend may be formed of the inventive polymer and another polymer such as MEH-PPV and BCHA-PPV (see par. 117). Pei further teaches incorporating color modifiers, phosphorescent dyes and the like (see par. 135).

With regard to claims 4, 6, and 7, Pei teaches the electroluminescent coating material is coated between electrodes and forms an electroluminescent material layer (see par. 138).

Response to Arguments

4. Applicant's arguments filed January 12, 2007 have been fully considered but they are not persuasive.

Applicant states the general formula taught by Pei in structure VII of paragraph 21 does not have two amino groups as set forth in the present claims. The examiner agrees the general formula shown does not expressly show the arylamino substituent group required in order to obtain a compound like the species under consideration; however, Pei does teach that Q¹ and Q² may be substituted aryl groups (see par. 55). Pei further defines the word "substituted" as at least one hydrogen atom bound to a carbon atom is replaced with a function group such as amino (see par. 47). Although Pei does not specifically teach diphenylamino as an amino group, Nukada teaches it is well known in the art that amino groups for electroluminescent device compounds may include specifically diphenylamino groups (see Nukada col. 4, lines 34-35).

Applicant further states that none of the preferred substituent groups shown in par. 75 or 77 includes an amino group. In response, the examiner notes that non-preferred embodiments can be indicative of obviousness (see *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Boe*,

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148 USPQ 507 (CCPA 1976); *In re Kohler*, 177 USPQ 399 (CCPA 1973)), and a reference is not limited to working examples (see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982)).

With regard to the secondary reference, Nukada, applicant argues “The structures in Nukada is different than the structure set forth in Pei or the present invention.” In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Nukada is relied upon as a secondary reference to teach it is well known in the art that amino groups for electroluminescent device compounds may include, specifically, diphenylamino groups (see Nukada col. 4, lines 34-35). It would have been obvious to one of ordinary skill in the art to have formed a “Q” substituted aryl group having an amino group as taught by Pei wherein the amino is a diphenylamino group as taught by Nukada, because Nukada teaches that diphenylamino is a well known amino substitution group.

The rejection over Pei in view of Nukada is respectfully maintained.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached at (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dawn Garrett
Primary Examiner
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